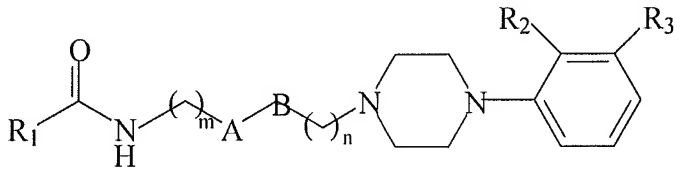
AMENDMENTS TO THE CLAIMS

1. (Original) A compound having the formula



(I)

wherein

A is cis or trans -CH=CH-, -C≡C-, or cyclohexyl;

B is cis or trans -CH=CH- or absent;

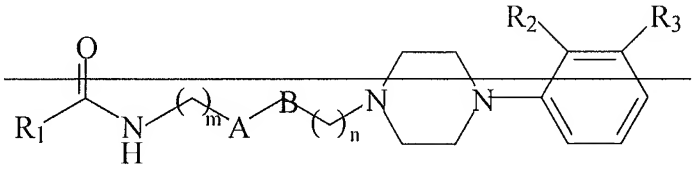
R_1 represents an aromatic substituent which may contain a heteroatom and is a single ring or multiple rings that are linked covalently, or that are linked to a common group, wherein R_1 is optionally substituted on one or more rings, wherein said substituents are selected from the group consisting of: hydrogen, halogen, amino, nitro, hydroxyl, alkoxy, alkyl, acyl and pyridyl, and said substitution may occur at any of the ortho, meta, or para positions;

R_2 and R_3 may be independently hydrogen or a halogen, or R_2 alone may be C_1, C_2, or C_3 alkoxy;

m is 1 or 2; and

n is 0, 1, or 2.

2. (Currently amended) A compound according to claim 1 wherein ~~having the formula~~



~~(I)~~

~~wherein~~

A is cis or trans -CH=CH-, -C≡C-, or cyclohexyl;

B is cis or trans -CH=CH- or absent;

R_1 represents an optionally substituted phenyl group, wherein said substituents are selected from the group consisting of: hydrogen, halogen, amino, nitro, hydroxyl, alkoxy, alkyl, acyl and pyridyl, and said substitution may occur at any of the ortho, meta, or para positions, or R_1 represents a heteroaryl group, with the exception that R_1 is not triazole or thiadiazole or benzisoxazole or benzothiazole;

R_2 and R_3 may be independently hydrogen or a halogen, or R_2 alone may be C_1, C_2, or C_3 alkoxy;

m is 1 or 2; and

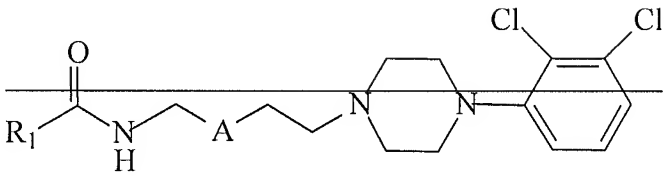
n is 0, 1, or 2.

3. (Original) The compound of claim 1, wherein B is absent, R_2 and R_3 are both halogen, m is 1 and n is 1.

4. (Original) The compound of claim 1, wherein B is absent, R_2 is lower alkoxy, R_3 is H, m is 1 and n is 1.

5. (Original) The compound of claim 1, wherein R_1 is phenyl substituted by a halogen, an amino group, a nitro group, a methoxy group, or pyridyl group.

6. (Currently amended) A compound <u>according to claim 1</u> ~~having the formula:~~



wherein

B is absent;

m = 1;

n = 2;

A is cis or trans -CH=CH-, -C≡C-, or cyclohexyl; and

R_1 represents an optionally substituted phenyl group, wherein said substituents are selected from the group consisting of: hydrogen, halogen, amino, nitro, hydroxyl, alkoxy, alkyl, acyl and pyridyl, and said substitution may occur at any of the ortho, meta, or para positions, or R_1 represents a heteroaromatic ring, with the exception that R_1 is not triazole or thiadiazole; and

R_2 and R_3 are both chloro.

7. (Original) A method of treating cocaine abuse in a subject, comprising the steps of:

administering to the subject an amount of a compound of claim 1 effective to inhibit binding of dopamine to a dopamine D3 receptor in the brain of said subject.

8. (Original) A method for selectively imaging dopamine D3 receptor in the central nervous system of a subject, comprising:

(a) administering a radioactively labeled compound of claim 1 to the subject; and

(b) detecting the binding of that compound to dopamine D3 receptors in the central

nervous system of the subject.

9. (Original) A method for detecting or monitoring a disease resulting from abnormal distribution and/or density of dopamine D3 receptor in the central nervous system of a subject, comprising:

(a) administering to the subject a detectably labeled compound of claim 1;

(b) detecting the binding of that compound to dopamine D3 receptor in the central nervous system tissue;

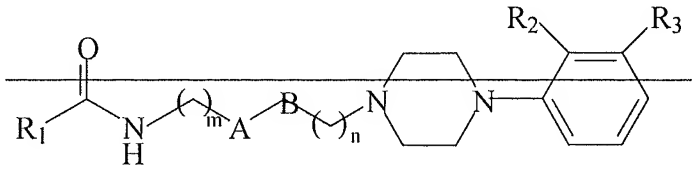
(c) determining the distribution and/or density of the dopamine D3 receptor in the central nervous system tissue;

(d) comparing the distribution and/or density obtained in (c) with the distribution and/or density of dopamine D3 receptor in a corresponding normal tissue; and

(e) diagnosing a disease state by a difference in the distribution and/or density between the normal tissue and the subject tissue.

10. (Currently amended) The method of claim 8 ~~or 9~~, wherein the central nervous system tissue is brain tissue.

11. (Currently amended) A compound according to claim 1 ~~having the formula~~



~~(I)~~

wherein

A is cis or trans -CH=CH-, -C≡C-, or cyclohexyl;

B is cis or trans -CH=CH- or absent;

R_1 represents an aromatic substituent which may contain a heteroatom and is a single ring or multiple rings that are fused rings or are linked covalently, or that are linked to a common group, wherein R_1 is optionally substituted on one or more rings, wherein said substituents are selected from the group consisting of: hydrogen, halogen, amino, nitro, hydroxyl, alkoxy, alkyl, acyl and pyridyl, and said substitution may occur at any of the ortho, meta, or para positions, with the exception that R_1 is not triazole or thiadiazole or benzisoxazole or benzothiazole;

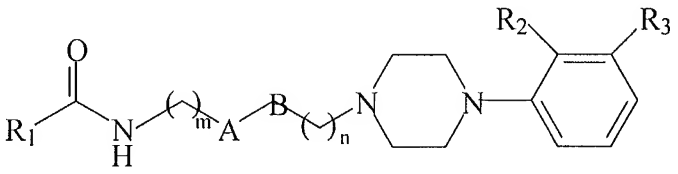
R_2 and R_3 may be independently hydrogen or a halogen, or R_2 alone may be C_1, C_2, or C_3 alkoxy;

m is 1 or 2; and

n is 0, 1, or 2.

12. (Original) The compound of claim 11, in which A is cyclohexyl.

13. (Original) A method of treating cocaine abuse in a subject, comprising the steps of: administering to the subject an amount of a compound having the formula



(I)

wherein

A is cis or trans -CH=CH-, -C≡C-, or cyclohexyl;

B is cis or trans -CH=CH- or absent;

R_1 represents an aromatic substituent which may contain a heteroatom and is a single ring or multiple rings that are fused rings or are linked covalently, or that are linked to a common group, wherein R_1 is optionally substituted on one or more rings, wherein said substituents are selected from the group consisting of: hydrogen, halogen, amino, nitro, hydroxyl, alkoxy, alkyl, acyl and pyridyl, and said substitution may occur at any of the ortho, meta, or para positions;

R_2 and R_3 may be independently hydrogen or a halogen, or R_2 alone may be C_1, C_2, or C_3 alkoxy;

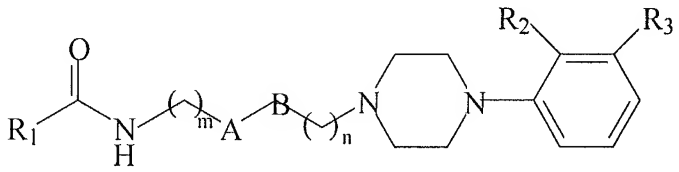
m is 1 or 2; and

n is 0, 1, or 2;

effective to inhibit binding of dopamine to a dopamine D3 receptor in the brain of said subject.

14. (Original) A method for selectively imaging dopamine D3 receptor in the central nervous system of a subject, comprising:

(a) administering a radioactively labeled compound having the formula



(I)

wherein

A is cis or trans -CH=CH-, -C≡C-, or cyclohexyl;

B is cis or trans -CH=CH- or absent;

R_1 represents an aromatic substituent which may contain a heteroatom and is a single ring or multiple rings that are fused rings or are linked covalently, or that are linked to a common group,

wherein R_1 is optionally substituted on one or more rings, wherein said substituents are selected from the group consisting of: hydrogen, halogen, amino, nitro, hydroxyl, alkoxy, alkyl, acyl and pyridyl, and said substitution may occur at any of the ortho, meta, or para positions;

R_2 and R_3 may be independently hydrogen or a halogen, or R_2 alone may be C_1, C_2, or C_3 alkoxy;

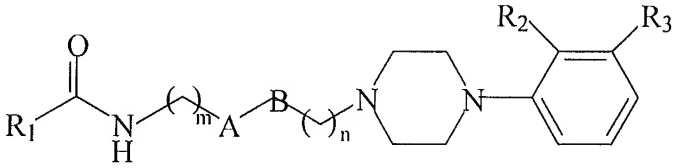
m is 1 or 2; and

n is 0, 1, or 2; to the subject; and

(b) detecting the binding of that compound to dopamine D3 receptors in the central nervous system of the subject.

15. (Original) A method for detecting or monitoring a disease resulting from abnormal distribution and/or density of dopamine D3 receptor in the central nervous system of a subject, comprising:

(a) administering to the subject a detectably labeled compound having the formula



(I)

wherein

A is cis or trans -CH=CH-, -C≡C-, or cyclohexyl;

B is cis or trans -CH=CH- or absent;

R_1 represents an aromatic substituent which may contain a heteroatom and is a single ring or multiple rings that are fused rings or are linked covalently, or that are linked to a common group, wherein R_1 is optionally substituted on one or more rings, wherein said substituents are selected

from the group consisting of: hydrogen, halogen, amino, nitro, hydroxyl, alkoxy, alkyl, acyl and pyridyl, and said substitution may occur at any of the ortho, meta, or para positions;

R_2 and R_3 may be independently hydrogen or a halogen, or R_2 alone may be C_1, C_2, or C_3 alkoxy;

m is 1 or 2; and

n is 0, 1, or 2;

(b) detecting the binding of that compound to dopamine D3 receptor in the central nervous system tissue;

(c) determining the distribution and/or density of the dopamine D3 receptor in the central nervous system tissue;

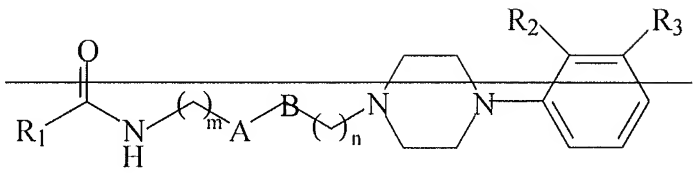
(d) comparing the distribution and/or density obtained in (c) with the distribution and/or density of dopamine D3 receptor in a corresponding normal tissue; and

(e) diagnosing a disease state by a difference in the distribution and/or density between the normal tissue and the subject tissue.

16. (Currently amended) The method of claim 14 ~~or 15~~, wherein the central nervous system tissue is brain tissue.

17. - 19. (Canceled)

20. (Currently amended) A compound <u>according to claim 1, wherein</u> ~~having the formula~~



~~(I)~~

~~wherein~~

A is cyclohexyl;

B is cis or trans -CH=CH- or absent;

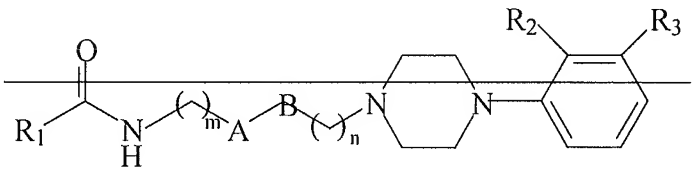
R_1 represents an aromatic substituent which may contain a heteroatom and is a single ring or multiple rings that are fused rings or are linked covalently, or that are linked to a common group, wherein R_1 is optionally substituted on one or more rings, wherein said substituents are selected from the group consisting of: hydrogen, halogen, amino, nitro, hydroxyl, alkoxy, alkyl, acyl and pyridyl, and said substitution may occur at any of the ortho, meta, or para positions;

R_2 and R_3 may be independently hydrogen or a halogen, or R_2 alone may be C_1, C_2, or C_3 alkoxy;

m is 1 or 2; and

n is 0, 1, or 2.

21. (Currently amended) A compound <u>according to claim 1</u> ~~having the formula~~



~~(I)~~

wherein

A is cis or trans -CH=CH-, -C≡C-, or cyclohexyl;

B is cis or trans -CH=CH- or absent;

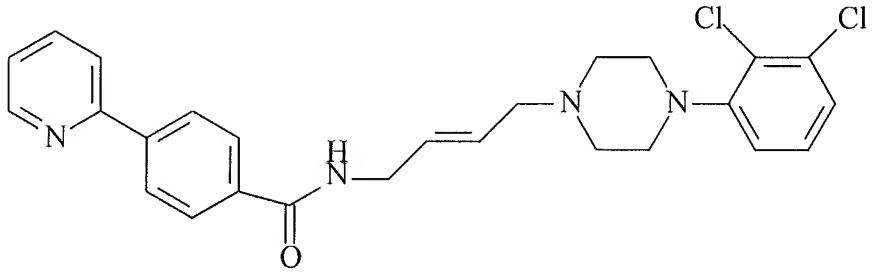
R_1 represents an aromatic substituent which may contain a heteroatom and is a single ring or multiple rings that are linked covalently, or that are linked to a common group, or is a group of three fused rings, wherein R_1 is optionally substituted on one or more rings, wherein said substituents are selected from the group consisting of: hydrogen, halogen, amino, nitro, hydroxyl, alkoxy, alkyl, acyl and pyridyl, and said substitution may occur at any of the ortho, meta, or para positions;

R_2 and R_3 may be independently hydrogen or a halogen, or R_2 alone may be C_1, C_2, or C_3 alkoxy;

m is 1 or 2; and

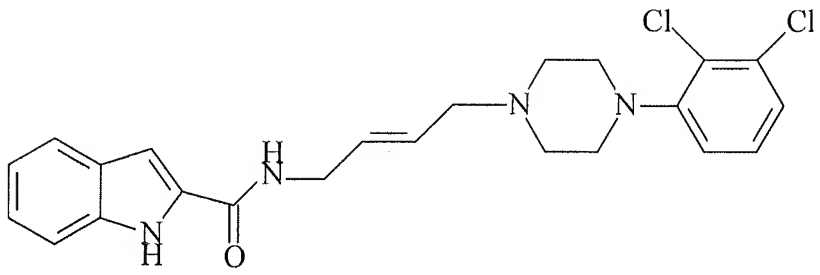
n is 0, 1, or 2.

22. (New) The compound of claim 1 that is:



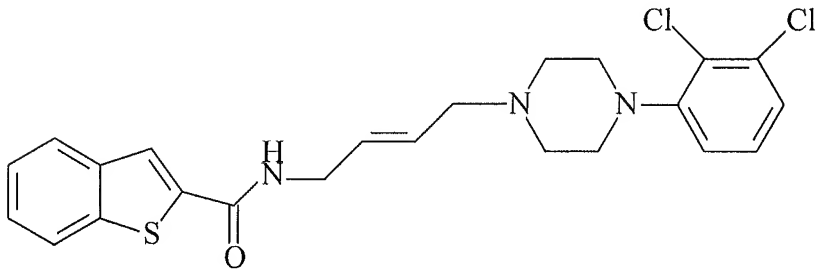
(E)-N-(4-(4-(2,3-dichlorophenyl)piperazin-1-yl)but-2-enyl)-4-(pyridin-2-yl)benzamide.

23. (New) The compound of claim 1 that is:



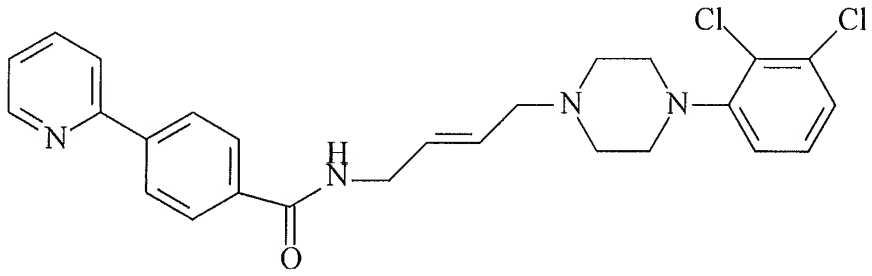
(E)-N-(4-(4-(2,3-dichlorophenyl)piperazin-1-yl)but-2-enyl)-1*H*-indole-2-carboxamide.

24. (New) The compound of claim 1 that is:

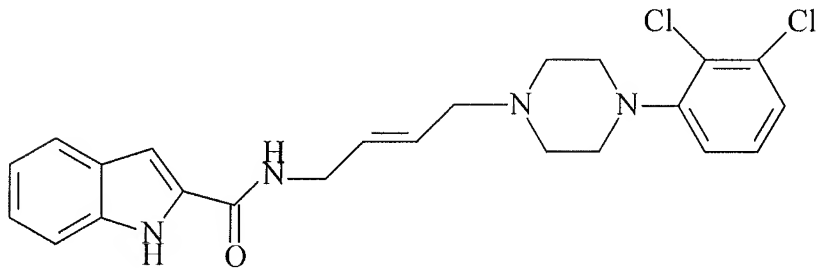


(E)-N-(4-(4-(2,3-dichlorophenyl)piperazin-1-yl)but-2-enyl)benzo[b]thiophene-2-carboxamide.

25. (New) The method of claim 13 wherein the compound is selected from the group consisting of:

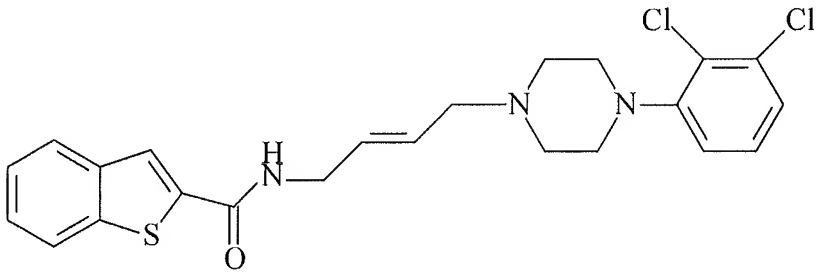


(E)-N-(4-(4-(2,3-dichlorophenyl)piperazin-1-yl)but-2-enyl)-4-(pyridin-2-yl)benzamide;



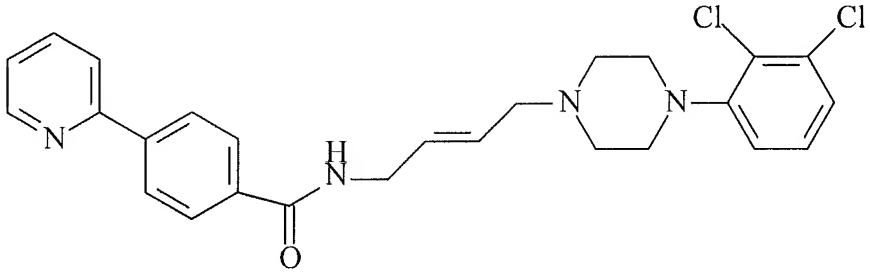
(E)-N-(4-(4-(2,3-dichlorophenyl)piperazin-1-yl)but-2-enyl)-1*H*-indole-2-carboxamide;

and

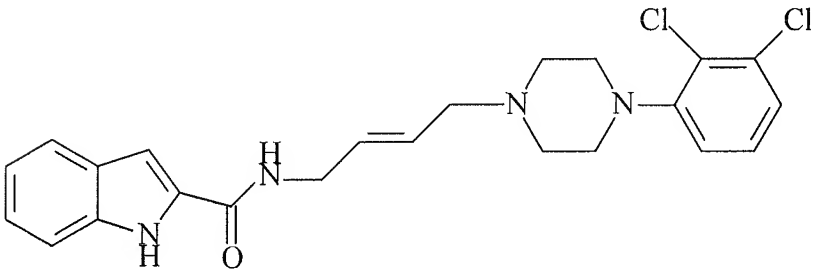


(E)-N-(4-(4-(2,3-dichlorophenyl)piperazin-1-yl)but-2-enyl)benzo[b]thiophene-2-carboxamide.

26. (New) The method of claim 14 wherein the compound is selected from the group consisting of:

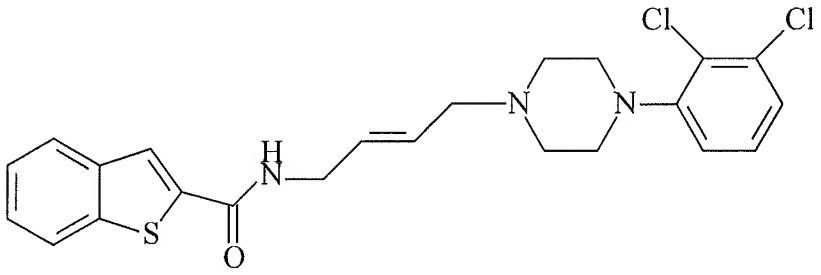


(E)-N-(4-(4-(2,3-dichlorophenyl)piperazin-1-yl)but-2-enyl)-4-(pyridin-2-yl)benzamide;



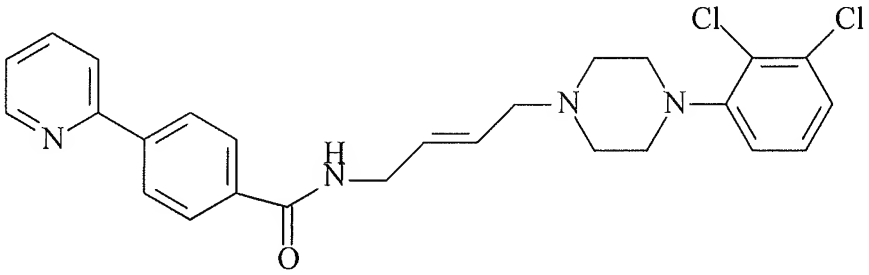
(E)-N-(4-(4-(2,3-dichlorophenyl)piperazin-1-yl)but-2-enyl)-1*H*-indole-2-carboxamide;

and

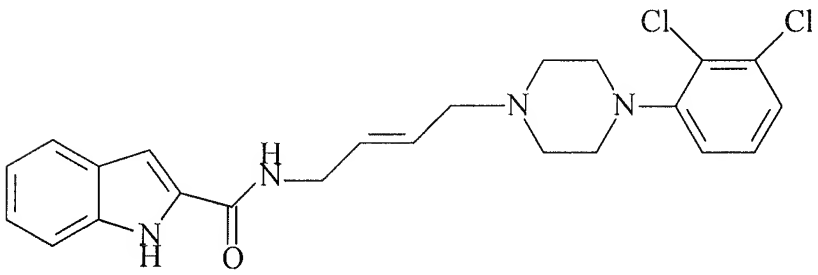


(E)-N-(4-(4-(2,3-dichlorophenyl)piperazin-1-yl)but-2-enyl)benzo[b]thiophene-2-carboxamide.

27. (New) The method of claim 15 wherein the compound is selected from the group consisting of:

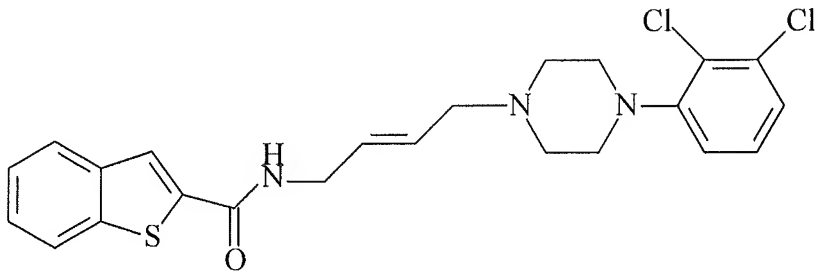


(E)-N-(4-(4-(2,3-dichlorophenyl)piperazin-1-yl)but-2-enyl)-4-(pyridin-2-yl)benzamide;



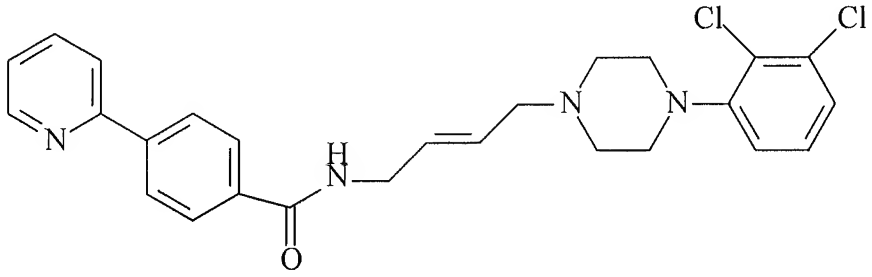
(E)-N-(4-(4-(2,3-dichlorophenyl)piperazin-1-yl)but-2-enyl)-1*H*-indole-2-carboxamide;

and

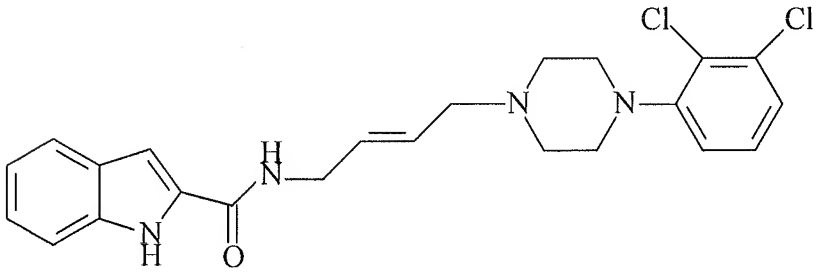


(E)-N-(4-(4-(2,3-dichlorophenyl)piperazin-1-yl)but-2-enyl)benzo[b]thiophene-2-carboxamide.

28. (New) The method of claim 16 wherein the compound is selected from the group consisting of:

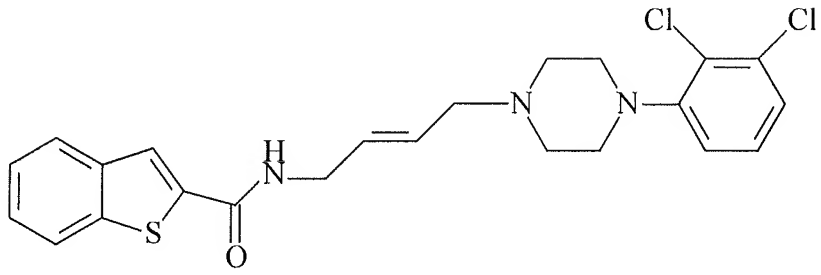


(E)-N-(4-(4-(2,3-dichlorophenyl)piperazin-1-yl)but-2-enyl)-4-(pyridin-2-yl)benzamide;



(E)-N-(4-(4-(2,3-dichlorophenyl)piperazin-1-yl)but-2-enyl)-1*H*-indole-2-carboxamide;

and



(E)-N-(4-(4-(2,3-dichlorophenyl)piperazin-1-yl)but-2-enyl)benzo[b]thiophene-2-carboxamide.

29. (New) The compound according to claim 1, wherein R_1 is indole.